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(71) Applicant (for all designated States except US): COS-MOTAN INC. [KR/KR]; 905, Sambo Building, 13-2, Yoido-dong, Youngdungpo-gu, 150-010 Seoul (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **CHOI, WonYong** [KR/KR]; 501-1002, Jugong Apt., 6, Byeoryang-dong, Gwacheon-si, 427-040 Gyeonggi-do (KR).

(74) Agent: **PARK, HeeJin**; 401, Miele Haus Building, 607-10, Yeoksam-dong, Gangnam-gu, 135-080 Seoul (KR).

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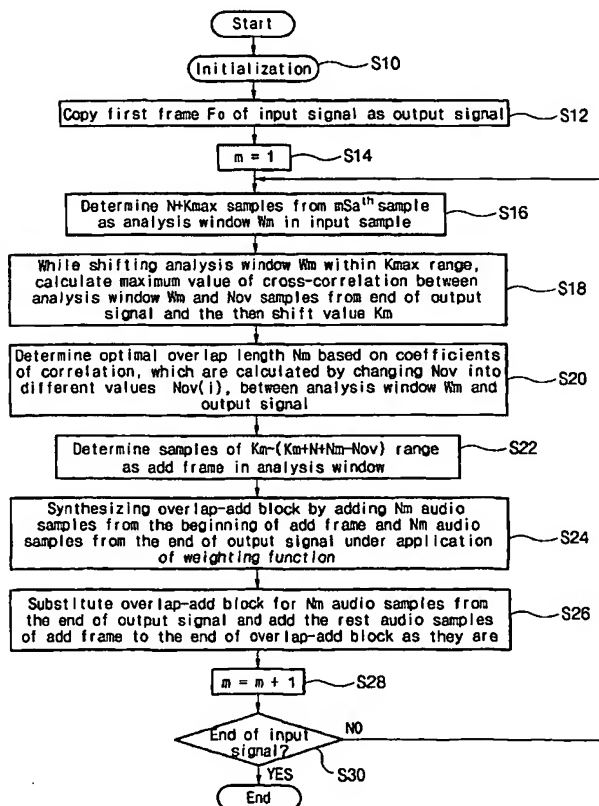
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(54) Title: AUDIO SIGNAL TIME-SCALE MODIFICATION METHOD USING VARIABLE LENGTH SYNTHESIS AND REDUCED CROSS-CORRELATION COMPUTATIONS



(57) Abstract: Disclosed is an audio signal time-scale modification method which utilizes variable length synthesis for the improvement of output audio quality and reduced cross-correlation computations for the reduction of computation loads to a processor. An analysis window consisting of $N+K_{\max}$ audio samples is selected from an input stream of audio samples and is shifted by the predetermined interval along an output stream to find optimal shift K_m , which ensures best cross-correlation between N_{ov} audio samples of the analysis window and last N_{ov} audio samples of the output stream, and a particular value of N_{ov_f} at which a coefficient of correlation between them is larger than a reference value or is the maximum one among a plurality of coefficients of correlation calculated with varying the value of N_{ov} . The audio samples involved in the calculation of cross-correlation are down-selected by the predetermined ratio from N_{ov} audio samples of the analysis window and last N_{ov} audio samples of the output stream, respectively. The analysis window may also be shifted by the plurality of audio samples per one shift. The audio samples ranged $k_m-(N+K_m+N_m-Nov)^{th}$ in the analysis window is determined as an add frame. The existing last N_{ov_f} audio samples of the output stream are replaced with new N_{ov_f} audio samples obtained by weighting and adding the overlapped parts, i.e., the first N_{ov_f} audio samples of the add frame and the last N_{ov_f} audio samples of the output stream, while remaining part of the add frame is simply appended to the tail of the new N_{ov_f} audio samples in the output stream.